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LLOYD'S STRATEGY OUT OF STATE HANDS – WAS THE ISSUANCE OF CONTINGENT
CONVERTIBLE BONDS A KEY SUCCESS FACTOR?

Effects of contingent convertible bonds issuance in banks' profitability

João Francisco Barbosa Silva Crujo Uva - 2597

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Rocha.

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Lloyds Banking Group was object of a public bailout in 2008, following the merger with Halifax Bank of Scotland. In 2009, the bank issued the first worldwide series of contingent convertible bonds (CCBs). Being Lloyds Banking Group reprivatisation an apparent case of success, one should know if this issuance was a key success factor. Therefore, this work project analyses the effects of issuing CCBs in banks' profitability. Through the estimation of a multiple regression model, negative effects on banks' profitability was found resulting from the issuance. Nevertheless, other determinants, such as the regulatory framework, should also be considered.

Key words: Lloyds Banking Group (LBG), Contingent Convertible Bonds (CCB), Profitability, Bailout.

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INTRODUCTION

Lloyds Banking Group (hereinafter referred as LBG) is a UK bank with operations mainly based on the British market. In 2009, the bank was under public scrutiny due to a state aid that was eventually required to keep the bank operating, and to avoid systemic risks since, if banking industry's activity worsen, some parts of economy would tend to follow the same path (Ofinger, 2012).

LBG resulted from the merger between Lloyds TSB and Halifax Bank of Scotland, in September 2008. At the time, from this merge resulted the largest retail bank in UK, in areas such as saving accounts, mortgages and personal current counts (House of Lords and House of Commons, 2013). Despite the problems felt by Lloyds TSB, the major driver for the need of a state aid was this merger. Actually, it is now deeply known that Halifax Bank of Scotland was in a very difficult situation in almost all its business segments.

Nowadays, governments are approving legislation in order to avoid public bailouts. To comply with them, banks, especially the ones operating in Europe and UK, with the approval of regulators, are issuing contingent convertible bonds (CCBs). In fact, LBG was the first bank worldwide issuing these securities (in 2009).

CCBs are hybrid capital securities, issued by banks, which allow to absorb losses during a financial distress period, and consequently improve the bank's capital position (McHugh, 2016). Depending on the specific characteristics of each bond they may qualify for Additional Tier 1 or Tier 2 capital under the Basel III international regulatory framework.

Being LBG an apparent case of a successful public bailout and also the first bank issuing CCBs, one should understand if both events are related.

Thus, this work project will analyse the effects of CCBs issuance in banks' profitability. In order to meet this purpose, a regression analysis was estimated, considering data from forty European banks that issued CCBs between 2010 and 2014, relying on internal determinants of banks' profitability (Rasiah, 2010).

Lastly, this work project is divided into 5 Chapters. Chapter 2 describes what happened to Lloyds Banking Group, namely with respect to the factors which led to the UK Government intervention. Chapter 3 presents the theoretical framework of this work project, explaining what CCBs are, detailing its characteristics, regulatory

treatment and expected future. In chapter 4 it is explained how the database was constructed, the variables that compose it, the regression estimated and its empirical results. Finally, chapter 5 presents and discusses the conclusions drawn from the present research.

OVERVIEW OF LLOYDS BANKING GROUP DISTRESS PERIOD

LBG resulted from the merger between Lloyds TSB and Halifax Bank of Scotland (hereinafter referred as HBOS), in September 2008. This merge originated the largest retail bank in UK leading, in terms of market share, in areas such as saving accounts, mortgages and personal current accounts (House of Commons and House of Lords, 2013). Nevertheless, it is argued that LBG would not have needed any state intervention if it had not acquired HBOS. This is precisely what Eric Daniels, former CEO of both Lloyds TSB and LBG, between the periods of 2003 and 2010, advocates. Being presented the main reasons for the state intervention in the LBG, it is now important to infer what type of institution was HBOS and what problems can be so severe to put an institution like LBG in such a difficult situation.

HBOS came to call itself as “the new force in banking”. The institution emerged in 2001 from the merger between the Halifax and Bank of Scotland. Halifax was an institution completely focused on retail banking, being the UK leader in both mortgages and savings. With the increasing competition of the financial sector, especially in the mortgages one, Halifax started to become a relatively stagnant institution, over depending in the aforementioned business lines. Thus, a possible merger with Bank of Scotland was seen as an occasion to convert Halifax into a commercial bank. On the other hand, for Bank of Scotland this deal was seen as an exceptional opportunity to reinforce its balance sheet with regard to capital and funding. In fact, especially since the 1990’s, with its penetration strategy into the English market, Bank of Scotland’s growth strategy placed an increasing pressure on the funding capacity of the bank.

After the merge, HBOS became one of the largest UK institutions, with assets totalizing £275 billion. With the increase in size, the bank saw a unique opportunity for fast growth, especially in business lines such as corporate or the international ones. Through **Appendix 1** one can see that HBOS followed an asset growth strategy with

its lending activity growing faster than its deposits, 13% and 8% respectively, between 2001 and 2008. Despite the positive expectations towards HBOS growth, it ended up reporting significant impairments across divisions. With regard to the corporate division, HBOS experienced problems such as huge individual credit exposures, with one single entity surpassing £2,9 billion, in 2008, and also with nine entities with loans over £1 billion each. In addition, the bank offered syndicated loans, which may be good for the larger ones, but will necessarily cause a strong reliance on the syndication market. Even so, more important than the values, was the fact that a significant portion of the issued loans had poor quality, mainly due to HBOS' strategy of investing in property and construction industries. In fact, Peter Cummings, chief executive of the corporate division between 2005 and 2008, set the goal of being the "best real estate bank in UK". In the end, one can see that the strong growth of this division, rather than a result of an efficient management, was originated by risky loans that resulted, between 2008 and 2011, in a £25 billion in loans impairments.

As aforementioned, HBOS' international presence at the time of its creation was relatively small, being consequently appointed as a weakness by some sectors of the bank and so, HBOS started, in 2004, an aggressive international expansion of its activity. This expansion, at that time, was mainly focused on two specific locations, Ireland and Australia. Ireland experienced the strongest growth. However, similarly to the previous mentioned corporate division, this growth was based on a rapid expansion of the assets through a strong increase in credit. Moreover, the main pillar of this strategy was also the real estate market. Consequently, HBOS impairments in Ireland were estimated to be around £10,9 billion, a substantially higher value than its peers, as it is possible to infer through **Appendix 2**. Actually, between 2008 and 2011, 60% of them are associated with exposures to real estate. In Australia, for the same period, the losses accounted for £3,6 billion, which represent 28% of the Australian loans value of the bank in 2008, a higher percentage than the one of the corporate division in UK, and without a causal relationship with the Australian economic and financial conditions at the time. Again, also on the international division, the risk management policies were questionable. HBOS also faced issues on its treasury division. Until 2004 this division was relatively conservative, maintaining high liquidity levels, which supported the need of wholesale funding to finance the aggressive growth of the

Group. This liquidity was invested in very conservative products such as government bonds. Nevertheless, from 2004, the bank changed its strategy to new products that yield higher returns, like credit derivatives. Being such a high-risk department, when it should be a pillar of stability and safety, resulted in losses of £7,2 billion between 2008 and 2011 for the bank.

Last but not least, the retail division strategy relied on the growth of non-standard mortgages, which had higher returns than the standard ones, but which also comprised higher risks. Between 2008 and 2011, this division incurred in estimated losses of £7 billion, with higher mortgage impairments than its competitors. Yet, these losses were not a substantial element for the failure of HBOS. In fact, this division remained profitable during the subprime crisis period.

Due to the aforementioned issues Lloyds felt the need of a state aid after purchasing HBOS. Thus, the government injected £8,5 billion in HBOS and further £12 billion in LBG. Beyond the capital injections, the bank also benefited from other state said mechanisms, such as Assets Protection Schemes, Credit Guarantees and Special Liquidity Schemes (House of Commons and House of Lords, 2013). However, one question remained to be answered: Why Lloyds TSB acquired HBOS? This question remains unclearly answered until these days. Despite the approval of the deal by Lloyds TSB's shareholders, in 2016, 6000 of them are still suing the bank, claiming the lack of complete information about HBOS' financial situation at that time. Another lines of thinking, which includes Sir Victor Blank, the former chairman of LBG, and the British government at the time, have been claiming that without the deal, the whole financial system would have been nationalised.

Despite the claims, the deal took place without any significant objections.

CONTINGENT CONVERTIBLE BONDS

DEFINITION

CCBs are hybrid capital securities, junior to both senior and subordinated debt, which have the capability to absorb losses, given their contract terms, when a bank reaches a specific level of financial distress (Albul et al., 2013). CCBs earned great visibility as a vehicle to provide equity support to banks that were facing capital

distress periods, and thus reduce the need for public bailouts (Nordal and Stefano, 2014). Banks, especially due to its lending activities, may incur in losses. For the losses that cannot be expected, banks must maintain a capital buffer in order to hedge against these losses. More recently, regulators have been moving regulation towards the strength of the banks' capital buffers. CCBs, as it is possible to infer below, due to their specific characteristics, are nowadays able to meet the exigent regulatory capital requirements of Basel III (Schmid, 2014). Due to this requirements and other apparent advantages, LBG was, in 2009, the first bank issuing CCBs.

These products have two main features: the loss absorption mechanism, and the trigger point or event that eventually activates that mechanism.

THE TRIGGER POINT

The trigger is the point that determines if a CCB is or not converted into equity, therefore it determines the likelihood of this conversion as well as its risk (Pazarbasioglu et al., 2011).

Triggers can be defined either mechanically or by regulators' decision. Mechanic triggers are usually activated when the available capital of a specific bank drops below a pre-defined value of its risk-weighted assets. These triggers can rely on market values or, on the other hand, on book ones. Book value triggers usually are defined as the ratio between the Common Equity Tier 1 (CET1) and the risk weighted assets (Avdjiev et al., 2013). However, the quality and the reliability of these triggers are very questioned by some academic researches. In fact, book value triggers can be considered as backward looking, since the decision to activate the loss absorption mechanism is based on past information. This problem could be partially mitigated by the frequent accounting of these ratios and consequent disclosure. However, beyond the difficulty associated with it, triggers efficiency is also subordinated to the accuracy and consistency that banks put on this process, which can vary across banks (Avdjiev et al., 2013). Thus, one can conclude that breaching book value triggers is strongly dependent on banks' decisions.

Market value triggers are usually defined as a quotient between the institution's stock market capitalization and its assets and so, any problems related with the public disclosure of information, as well as its quality and updating are necessarily resolved. However, market value triggers are more exposed to stock price

manipulations, which therefore can raise several problems related with the pricing system of the bond. As it will be further explained, conversion to equity is one of the loss absorption mechanisms. In this case, the intention to manipulate the stock price in order to convert a specific pair of bonds into equity might exist. To do so, with a conversion to equity mechanism, CCBs' investors may want to aggressively short sell the stock in order to decrease the stock price, and consequently breach the trigger that convert the bonds into equity (Avdjiev et al., 2013).

Lastly, the discretionary triggers can be activated at the solo discretion of the regulator. It is up to the regulator to infer what is the real situation of the issuance institution, namely with respect to the capital solvency, and to decide consciously if it is necessary or not to activate the loss absorption mechanism. This trigger mechanism can prevent several problems like the ones presented in the previous two triggers types. However, other type of problems can be raised, namely the uncertainty wrapped around the decision of the regulator. In this case, regulators may tend to postpone the conversion in order to avoid the negative signalling affect associated (Ofinger, 2012).

LOSS ABSORPTION MECHANISM

Since CCBs can increase bank's equity, the loss absorption mechanism is extremely relevant. This absorption process can occur either by a direct conversion to equity, at a predefined rate, that raises Common Equity Tier 1 ratio or, on the other hand, through a principal write down that consequently, if everything remains equal, also increases equity.

With regard to the conversion to equity, as aforementioned, when a specific trigger is breached, the amount of debt corresponding to the issued CCBs may either totally or partially be directly converted into equity.

There are three main possibilities to determine the conversion rate. In the first one, a pre-defined price may be chosen, in which is usually defined the stock price of the institution at the time of the issuance. In the second, the conversion rate is defined when the trigger is breached. Lastly, it is possible to conjugate the first two hypotheses by setting the conversion rate equal to price of the stock when the trigger is breached, but with a pre-defined minimum price.

As expected, each mechanism has its own advantages and disadvantages. In the first one, although the dilution hypothesis is limited since the price is already defined, it may create incentives to breach the trigger or, at least, may discourage its avoidance (McDonald, 2009). On the other hand, a conversion rate equal to the stock price may cause a dilution effect, since it is expectable that the stock price would be very devaluated at the time the trigger is breached (Maes and Schoutens, 2010). However, in contrast with the first option, the hypothesis of dilution may positively incentive the avoidance of breaching the trigger, since shareholders and managers are not interested in a loss of value. The “hybrid” option can prevent both of the two problems, since shareholders have no incentives to breach the triggers, due to the fact that the conversion rate equal to the stock price, and the dilution is limited due to the minimum price (Avdjiev et al., 2013).

In the principal write down, if the trigger is breached, the amount of debt corresponding to the CCBs is transformed into equity. This write down can be either partial or full. The first one is like a hybrid solution where part of the debt is written down, while the remaining may be recovered. In the second one, all the debt is written down. The principal write down can also be temporary or permanent. In the former, there is the possibility to recover partially or fully the investment if the bank repairs its financial health, while in the latter, this is not possible.

REGULATORY FRAMEWORK

CCBs supply have been increasing, due to the introduction of the new bank regulations from Basel III (Ofinger, 2012). Under this new framework CCBs can qualify for Additional Tier 1(AT1) and also Tier 2 (AT2) capital. According to Basel III, all non-common T1 and T2 instruments must belong to the contingent capital class (Rozanksy and Allen, 2011).

In this case, CCBs with discretionary triggers can qualify for both types of capital if not, they only qualify for AT1. Due to these regulatory requirements, the issuances of CCBs with discretionary triggers have been increasing over the last few years. However, the trigger point also influences the type of capital that is covered. Low trigger CCBs have much less absorption capacity, and therefore do not qualify for the Tier 1 capital but

still, are less expensive to issue since the probability of trigger being breached is lower, as well as, the remaining value that bondholders will have in the bank (Pitt et al., 2011).

Despite the apparent regulatory issues and constraints on the issuance of CCBs that qualify for AT1 capital, the reality is that banks have been increasing the issuance of these types of products, with 76% of the CCBs issued in 2015 being of AT1, especially due to regulations impositions (McHugh, 2016). In the new regulatory framework of Basel III, 5,125% is the minimum trigger level, concerning CET1, for a CCB to qualify for AT1. As a result, the issuances of these products with a trigger equal to this value have been increasing. Besides the aforementioned characteristics, the maturity is also an important factor. Under Basel III framework, only perpetual CCBs may qualify for AT1 capital, which explains that between 2009 and 2015, 57,1% of the CCBs issued were perpetual. Moreover, in AT1 CCBs, the coupon payments may be delayed or even cancelled at the decision of the issuer without initiating any event of default as well as by the regulator (McHugh, 2016).

In the end, there are several differences between CCBs that qualify for AT1 or AT2 capital. The former ones rank, with respect to banks' capital structure, right ahead of equity capital. Its coupon payments may be suspended even if the capital ratio is above the pre-defined trigger and, as stated, they must be perpetual although the issuer has a call option. The latter ranks directly ahead AT1 CCBs, with respect to the capital structure. These CCBs must have a limited maturity or, if not the case, must not have a call option and, lastly, the coupon payments have not the possibility to be suspended (Schmid, 2014).

Besides the aforementioned regulatory features, most CCBs also include regulatory call and tax call features (McHugh, 2016). In the former, the issuer has the right to repurchase the CCBs if regulatory capital adequacy changes, while in the latter the issuer has the right to repurchase it under a change in their tax framework.

Lastly, although its importance, under Basel III framework, CCBs' capital adequacy is not dependent on their loss absorption mechanism (Nordal and Stefano, 2014).

FUTURE EXPECTATIONS

The future of CCBs' market is directly related with the regulation that is in place across the time. Nowadays the regulatory framework favours the issuance of this type of products, which is reflected by geographic distribution

of the issuers. Nearly 80% of the issued CCBs are from European banks and the most active markets are the UK and Swiss ones. In Europe, for example, the new Capital Requirement Framework is in force from July 2013, that must be implemented by all member states, and favours the issuance of these products. On the other hand, Swiss authorities demand banks to have, in loss absorption securities, 9% of its risk weighted assets (Avdjiev et al., 2013). However, there is yet some lack of regulation around these products, namely with respect to their tax treatment. If CCBs are considered as debt, then it is possible to have a tax-deductible interest, although it is estimated that only 64% of the issued CCBs have tax-deductible interest expense, while 20% do not have. The remaining 16% are still in a regulatory void. On the other hand, many credit rating agencies do not evaluate completely this type of products. For example, only 48% of AT1 CCBs and 57% of T2 CCBs issued between 2009 and 2015 rated by Moody's received investment grades at the issuance (McHugh, 2016). This happens specially due to three main factors: the differences regarding legislation across jurisdictions, the fact that the discretionary triggers may be a source of dubiety that enables a proper evaluation of the rating, and lastly the fact that these agencies consider that high trigger CCBs have the possibility to modify the hierarchy of investors since CCB holders may incur in losses ahead of equity holders.

To conclude, nowadays, the issuance of these products may be interesting to banks, especially due to the tied regulatory requirements (Schmid, 2014). Even so, Lloyds' announcement in 2014 that it might exercise its regulatory call option and the recent sharp decline of several banks' CCBs prices in February 2016, raised concerns about banks' capabilities to make discretionary coupon payments, compromising the future of these securities. Still, no bank has experienced yet any coupon payment failure or even any trigger event so far.

METHODOLOGY AND DATA

ESTIMATION METHODOLOGY

Panel data was the chosen method for the regression analysis that was estimated. With this approach, one can have time series observations for a number of individuals.

For the purpose of this model, the cross section dimension corresponds to forty banks (**Appendix 3**) that operate in the European market and have issued CCBs in different periods. In this case, there was an attempt to choose relatively similar banks, although this was not entirely possible.

The time series dimension is composed by the years between 2010 and 2014. The choice of 2010 was done because LBG issued its firsts CCBs in 2009, and therefore in 2010 the potential effects should already be captured. With regard to the choice of 2014, it was due to the fact that, for some banks, it is the most recent year with information available. Concluding, by using a five year range to estimate the model, one is enriching its accuracy, by increasing the size of the sample.

Lastly, it was used the ordinary least squares regression method with period fixed effects, using the econometric programme Eviews. By using period fixed effects one can control the aggregate economic environment across different years.

DATA SET DESCRIPTION

The data used, as stated, ranges between 2010 and 2014, and characterize the major forty European banks that, in different points in time, issued CCBs. The data was taken from banks' annual reports, except the information regarding the CCBs emission and the exchange rate used to convert all the currencies into pounds, which were withdrawn from Bloomberg.

Appendix 4 presents a descriptive statistics summary for the variables included in the regression model.

Lastly, one should bear in mind that several variables included in the model, with the exception of the ones including CCBIssued, may be considered as control variables. These variables, which will be interpreted bellow, are included due to the implicit assumption that they may affect the dependent variable and their omission could distort the relationship among them (Spector and Brannick, 2010). Thus, one can expect to achieve more accurate results by including these variables, since there was an attempt to relate the composite control variables with CCBIssued by turning, also, the former into a composite one. In fact, there is a relative consensus in literature that the use of control variables is necessary and disseminated (Spector and Brannick, 2010).

VARIABLES DESCRIPTION

RETURN ON EQUITY

For the purpose of this model, return on equity (ROE) is the profitability measure used as dependent variable. ROE is the ratio between bank's net income and its book value of assets, being similar to the bank's required return on equity. According to Du Pont Identity, one of the three inputs of ROE is the equity multiplier, which measures the value of assets per unitary value of shareholder equity. Thus, one of the major drawbacks of ROE is the fact that ignores the risks related with leverage (Athanasoglou et al. 2008). Despite its drawbacks, literature widely used ROE as a profitability measure. For many European banks specifically, off-balance sheet business have an important impact in their total profits, and therefore, ROE is considered an accurate measure of profitability (Goddard et al. 2004b).

BANKS' SIZE: ASSETS

Total assets variable was included in the model, since it is believed that there is a positive relationship between the size and profitability of banks. This may happen, for example, due to the existence of economies of scale (Iannota et al. 2007, Alexiou, Sofoklis 2009). However, according to Goddard et al. (2004), scale economies may become exhausted as the size increases, which may be relevant for the purpose of this model given the size of the banks included in the sample. In fact, in the literature, it is widespread that the average cost curve of banks is a flat U-shape curve, being the medium-sized banks the most efficient ones. Moreover, for the large and medium-sized banks, the scale efficient gains account for only 5% or less (Berger and Humphrey, 1994), which means that the size increase effects are stronger when banks are small, but weak for the other ones. Besides scale economies, large banks may also benefit from economies of scope. In this case, banks may, for example, sell more integrated products to its clients. Thus, according to Elsas et al. (2010), economies of scope are present in the banking industry and increase its profitability.

On the other hand, other research argues that profitability is affected by market-power and efficient-structure, which are directly affected by the size of the banks. According to Hannan (1979), Bourke (1989), Molyneux

and Thornton (1992), there is a positive relationship between banking concentration and profitability, since increasing market power move banks towards monopolistic profits. Moreover, large size banks may also benefit from implicit guarantees through the too-big-to-fail concept, which may decrease the cost of funding (Iannotta et al. 2007). In line with the previously mentioned theory, the efficient structure hypothesis argues that banks with a better management and/or production technologies will have lower costs, which result in higher profits.

Although, as stated, it is expected a positive relationship between total assets and profitability, this may not be completely certain. Just as an example, Barros et al. (2007) emphasise the difficulty that larger and more diversified banks have in properly reducing asymmetric information associated with loans, which results in poor performances.

CAPITAL ADEQUACY: CAPITAL RATIOS

Capital allows banks to absorb losses while it “remains a going concern”. In this case, the relationship between capital ratios and profitability is unexpected mainly due to the contradictory literature on this topic. According to Bourke (1989), capital ratios are positively related with profitability, since well capitalized banks may fund themselves with cheaper and less risky funds, and have access to superior asset markets. Berger (1995) highlights two reasons for this positive relationship. In one hand, there is the expected bankruptcy costs hypothesis, which states that the higher the probability of bankruptcy the higher the capital ratios will be. Thus, an increase in the capital ratios will reduce the probability of failure, and consequently decrease the expected value of bankruptcy costs. On the other hand, there is the signalling hypothesis according to which managers may want to signal a possible strong future stream of cash flows through the increase of capital (Myers and Majluf, 1984).

However, there are also unclear empirical researches. According to Berger and Udell (2006) this may happen due to two different hypotheses: the efficiency-risk, which defends that more efficient banks tend to have low equity ratios, since there are expectations that higher returns may substitute capital in future possible problems of financial distress; and the franchise-value hypotheses, which states that more efficient banks tend to choose higher capital ratios in order to protect its future profits from the aforementioned problems. In the same

branch, Jensen and Meckling (1976) found that with high capital ratios managers are more motivated to reduce agency costs of debt and consequently increase profitability. However, according these authors, in some point of financial problems, the agency costs of debt will overcome the agency costs of equity. Thus, decreases in capital will increase the total agency costs, which reduces profitability.

Bearing in mind the previously referred characteristics, for the purpose of this model Common Equity Tier 1 (CET 1) ratio was considered as an independent variable. Since the dependent variable is expected to be affected by percentage changes in capital ratios, there was the need to transform this variable into a logarithmic one.

CREDIT GROWTH

Credit growth variable measures the variation of the bank loans to customers, financial institutions and central banks, in a given year relative the previous one. Banks' capacity to generate business and profits is closely related to their loans. Consequently, a positive relationship between lending variation and banks' profitability is expected. However, it is important to highlight that a possible negative effect may occur. Keeton (1999) studied the intimate relationship between the business cycles and credit growth. According to this author, credit growth is more intense in a business expansion cycle when banks' profits are higher, but the non-performing losses are also higher during a recession, which may cause a decrease in the banks' profitability. In fact, the impact of the credit growth in profitability is not totally clear. Foos et al. (2010) analysed the relationship between the growth of credit and the individual risks of banks. According to these authors, the growth of the loans adversely impacts the banks' risk-adjusted interest income, which may indicate that this growth is a considerable factor of banks' risk. Amador et al. (2013) emphasise that strong loans' growth for an extended period tend to increase the risk taking behaviour of banks, leading to reductions in their solvency, and an expansion of non-performing losses. In the end, as stated, the effect of this variable in banks' profitability may be relatively unpredictable yet, intuitively, it is expected a positive relationship.

PROFIT

By deducting to banks' revenues all the expenses one can reach the value of profits. These values are often used to compare companies within the same industry, since they tend to be highly scrutinized by all the economic agents.

Although several literature argues that corporate income taxes may distort banks' capital structure mainly due to the presence of minimum capital requirements (Gambacorta and Mistrulli, 2004), it is also consensual that banks intend to maximize its after tax profit, which may indicate that before tax profit is not a proper profitability measure. Actually, many banks pursue to invest a significant share of its assets in securities that bear tax-exempt income. Thus, by holding a several portion of yield tax exempt assets, a bank may present a poor pre-tax performance but be, at the same time, highly after-tax profitable (Gilbert and Wheelock, 2007).

For the purpose of this model, profit is a variable that quantifies the after tax profits of the banks presented in the sample.

CCBS ISSUED

CCBIssued is a dummy variable created with the purpose of understanding the effects in banks' profitability resulting from the issuance of CCBs. Therefore, for any specific year, the dummy variable assumes the value of one when a particular bank issued CCBs, and zero if the bank did not.

Although several academics (Flannery (2005,2009,2010), Kashyap et.al (2008) Duffie (2010) or McDonald (2013)) contributed for the research of CCB bonds, the literature on the effects of this security in banks' profitability is relatively scarce. However, it is known that these products are much more expensive, in the banks' perspective, than other types of debt. In fact, between 2009 and 2013, the YTM of the CCBs issued was, on average, 2,8% higher than subordinated debt, and 4,7% than senior unsecured debt, for the same issuer (Avdjiev et al. 2013). Moreover, the recent events in 2016, raised apprehensions about banks' capabilities to make the discretionary payments associated with CCBs without significantly harming their profitability (McHugh 2016). Due to these and the previous mentioned characteristics, one can expect a negative relationship between CCBs issuance and banks' profitability.

MODEL RESULTS & DISCUSSION

In this section it is described the model according to which conclusions should be drawn on the effects of CCBs issuance in banks' profitability. The model estimated is presented below:

Equation 1– Regression Model

$$RE = \beta_0 + \beta_1 \times Assets + \beta_2 \times \log(Capitalratios) + \beta_3 \times Credit\ growth + \beta_4 \times Profit + \beta_5 \times CCBIssued + \beta_6 \times (CCBIssued \times Assets) + \beta_7 \times (CCBIssued \times \log(Capitalratios)) + \beta_8 \times (\log(Capitalratios) \times Assets) + \beta_9 \times (\log(Capitalratios) \times Creditgrowth) + \beta_{10} \times (Profit \times Creditgrowth) + u$$

Table 1 – Estimation Results for Banks' Profitability

Variable	Dependent Variable: RE									
	Assets	Log(Capitalratios)	Credit_growth	Profit	CCBIssued	CCBIssued*Assets	CCBIssued*Log(Capitalratios)	Log(Capitalratios)*Assets	Log(Capitalratios)*Credit_growth	Profit*Credit_growth
Coefficient	-1,34E-06	0,475156	-2,889227	4,10E-05	-0,57366	-1,19E-07	-0,294084	-5,97E-07	-1,412223	-0,000106
Std. Error	3,78E-07	0,079572	0,805643	5,15E-06	0,255168	5,94E-08	0,126163	1,66E-07	0,360960	1,42E-05
t-Statistic	-3,537914	5,971410	-3,586236	7,962626	-2,248171	-2,003120	-2,330987	-3,591874	-3,912406	-7,476205
Prob.	0,000500	0,000000	0,000400	0,000000	0,025700	0,046600	0,020800	0,000400	0,000100	0,000000

R ²	R ² Adj	Prob (F-statistic)	Durbin-Watson
0,424707	0,381172	0,000000	1,649008

Firstly, it is important to refer that the variables included in the model do not indicate any collinearity problem.

Table 2– Correlation Matrix

	RE	Assets	Capitalratios	Credit growth	Profit	CCBIssued
RE	1					
Assets	0,084	1				
Capitalratios	0,141	-0,236	1			
Credit growth	0,259	0,035	0,121	1		
Profit	0,224	0,422	-0,087	0,373	1	
CCBIssued	0,087	0,02	0,114	0,088	0,058	1

Through **Table 2**, one can see that the correlation coefficients are relatively low, not exceeding in any case 0,5 (Arslan, Karan and Eksi, 2010). Moreover, the model is globally significant at 1% confidence level. By looking to the value of Prob(F-statistics), one can reject the null hypothesis and conclude that at least one $\beta_i \neq 0$. Additionally, through the p-value associated, it is possible to conclude that all the variables included are individually statistically relevant at a maximum significance level of 5%. Regarding possible correlation of residuals, one can state that there is no evidence of residuals correlation in the model. Through the Durbin-Watson test, due to conservatism purposes, it is possible to reject the null hypothesis ($H_0: \rho = 0$) and conclude that there are no correlation problems in the residuals of the model.

Lastly, according to the R^2 value, one can state that approximately 42% of the variations in the dependent variable are explained by the independent ones included in the regression.

GENERAL RESULTS

Although it is not the purpose of this work project, important results were reached in order to understand the effects in banks' profitability resulting from the issuance of CCBs.

According to the **Table 1**, it is possible to infer that the size of the banks negatively affects their profitability. More specifically, *ceteris paribus*, one increase in the value of the assets negatively affects return on equity ($\beta_1 = -1,34E - 06$). Even though it was expected a positive relationship, this result is also corroborated by the literature. As stated, according to Goodard et al. (2007), scale economies may become exhausted when the size of the banks increase, leading to situations of diseconomies of scale. On the other hand, large size banks may also become too bureaucratic, which also reduces profitability (Athanasoglou et al., 2008). Moreover, Barros et al. (2008) also found that larger banks tend to perform badly, since small and more specialized banks can reduce properly asymmetric information related with lending. This negative relationship is emphasized by percentage increases in the capital ratios. However, according to the model, one percentage point increase in the capital ratios positively impacts return on equity ($\beta_2 = 0,48$). This result is in accordance with the theory defended by Bourke (1989), according to which capital ratios are positively related with profitability. This result also confirms both the bankruptcy cost and the signalling hypothesis. As found by Berger (1995b), supported by the bankruptcy cost hypothesis, capital ratios positively impact return on equity. Moreover, according to the model, for the same level of capital ratios, an increase of one unit in the value of the assets would lead to a decrease in return on equity ($\beta_8 = -5,97E - 0,7$). Being the impact of capital ratios positive, this result suggests that an increase in the size of the banks should be accompanied by an increase in the capital ratios, which is attested by Gering and Bratonivic (1993). Through the model it is also possible to conclude that, for the same value of capital ratios, an increase in the credit growth negatively affects return on equity ($\beta_9 = -1,41$), which confirms that an increase in the assets should be accompanied by an increase in capital ratios, and is in line with the results obtained with credit growth isolated variable. Lastly, and as it will be

further explained, it is also possible to conclude that the positive effect that capital ratios have in banks' profitability is reduced when there is an issuance of CCBs.

With regard to the credit growth, one can see that an increase in its value, negatively affects return on equity ($\beta_3 = -2,89$). This result may be explained by the increase in the risk-adjusted interest income that a strong increase in credit may cause in banks, as predicted by Foos et al. (2010). In fact, as mentioned, the non-performing loans were one of the major drivers of Lloyds difficult situation. Moreover, besides the isolated positive effect of profits ($\beta_4 = 4,1E - 05$), by considering its value as constant, one can check that an increase in credit growth negatively affects profitability ($\beta_{10} = -0,0001$). This result may also suggest an increase in non-performing loans, as predicted by Amador et al. (2013).

EFFECTS OF CONTINGENT CONVERTIBLE BONDS ISSUANCE IN BANKS' PROFITABILITY

The regression presented in **Table 1** estimates a negative relationship between RE and the issuance of CCBs. More precisely, *ceteris paribus*, the issuance of CCBs negatively affects RE on 0,57 units ($\beta_5 = -0,57$). Through the model it is also possible to infer that the effect of the size of banks, measured by total assets, negatively affects RE when a bank issued CCBs. In this case one can say that the size effect is even more negative, in a given year, for banks that issued these type of securities. Lastly, it is also possible to conclude that, for a bank that issued CCBs, an increase in capital ratios negatively affects RE. This result suggests that the aforementioned positive effect of capital ratios is reduced when a bank issues these securities.

With regard to the isolate effect, one can say that it is in line with the expected relationship. As mentioned, CCBs are more expensive than other types of debt. CCB bonds pricing is mainly determined by three main factors: the position in bank's capital structure; the loss absorption mechanism; and the trigger event. Although these three components contribute to the spread of CCBs' YTM over other types of debt, the position in the capital structure and the implicit loss absorption capacity are the main drivers, since these securities incur in losses first than other types of debt. Consequently, subordinated debt shall be junior relative to senior debt, and CCBs should have the highest yield, ranking junior relative subordinated debt (Nordal and Stefano, 2014).

Schmid (2014) estimates, for a specific Credit Suisse CCB, a spread in return of 2,33% over the other subordinate bonds of the bank. More generally, and as stated, between 2009 and 2013 the YTM spread of CCBs issued was, on average, 2,8% higher than subordinated debt, and 4,7% higher than unsecured debt (Avdjiev et al. 2013). Lastly, this negative effect that CCBs issuance have in banks' profitability is also in accordance with McHugh (2016), who warns how discretionary coupon payments of CCBs bonds may harm profitability.

With regard to the size effects, as mentioned, one can say that the negative effects of banks' size are even more pronounced in a bank that issued CCBs ($\beta_6 = -1,19E - 07$). Given the isolated effect of total assets, one can say that this result is expected since the regression suggests that large size banks may experience diseconomies of scale (Goodard et al. 2007). As stated, there is a consensus in literature that the average cost curve of banks has a U-shape. Thus, it is expected that larger banks have higher average costs than small ones, which necessarily negatively affects profitability. As predicted by Athanasoglou et al., (2008), large size banks also tend to be more bureaucratic, which consequently also raises average costs and decreases profitability. CCB bonds, as any other liability, comprise a cost to banks. However, and as mentioned before, these securities are more expensive to issue than other types of debt, which consequently negatively affects banks' average costs. Thus, one can conclude that, given the aforementioned characteristics of CCB bonds and the banks' size effects in profitability, this result is expected and coherent. This result also refutes market power hypothesis, according to which market power leads to monopolistic profits (Hannan, 1979, Bourke, 1989, Molyneux and Thornton, 1992), since these effects, even more for banks that issued CCBs, are negative. However, one should bear in mind that the issuance of CCB, as stated, is also affected by the regulatory environment. Until 2014, according to data from the Financial Stability Board, 58% of the CCB market was detained by Global-Systemically Important Banks (G-SIBs), which reinforces the idea that the issuance of CCBs is mainly carried out by large banks and exceeds the mere financial rationale, especially considering the previous mentioned effects in banks' profitability. In fact, as stated by Schmid (2014), CCBs market have been increasing due to the increasing capital reserve requirements demanded by regulatory authorities.

Ultimately, the regression estimates that the positive effects of capital ratios in profitability are decreased in a bank that issued CCBs ($\beta_7 = -0,29$), although it remain positive. This result confirms the previously mentioned relationship found by Bourke (1989) and Berger (1995). Even though, one should notice that these effects are reduced in banks that issued CCBs. In banking, capital requirements oblige banks to finance itself with a certain amount of equity to guarantee that debt-to-equity ratio remains lower at an accepted level (Berk and DeMarzo, 2014). However, and as explained, CCB bonds qualify for capital. If this trigger is breached, bonds are transformed into equity which consequently increase capital ratios. This result suggests that there is an inflection point in the positive effects of capital ratios, due to, for example, the unutilized investment opportunities, as found by Unoh (1991) and Thakor (1996). Goddard et al. (2004) also found the same result, especially in overcapitalized banks.

In other words, there is a point in banks' capital structure where constant increases in capital ratios turn out to be negative for banks' profitability since, *ceteris paribus*, by increasing debt-to-equity ratio with CCBs, banks guarantee that, if necessary, its levels of capital may also increase, through a reduction of debt, without having to bear the associated cost of equity that tend to be higher (Schmid, 2014). Notwithstanding the aforementioned, this result may also suggest that, although capital ratios positively affect profitability, its constants increases via the breaching of CCBs' triggers turn out to be negative. As explained, due to the high yields of CCBs, it may happen the case that these securities are more expensive than the aforementioned bank's cost of equity. Thus, according to these results, these increases should be done at the expense of other types of capital such as retained earnings or capital increases.

CONCLUSION

The purpose of this work project has been to infer the situation that led LBG towards the government intervention, as well as to understand the possible correlation between bank's recovery and the issuance of CCBs. As explained, the merger with Halifax Bank of Scotland resulted in huge impairments, which were mainly due to an unbalanced management of the balance sheet, namely with respect to the granted credit.

Following these problems, LBG was the first CCBs issuer, which may raise doubts whether this issuance is directly related with the bank's recovery.

Therefore, besides the proper explanation of these products, a regression analysis was estimated in order to infer how these securities affect banks' profitability, both in the UK and Europe.

The result of this regression pointed out that the issuance of CCBs negatively affects banks' profitability. Moreover, if CCBs are issued in a given year, both the size of the banks, measured by total assets, and the capital ratios negatively affect banks' profit, although in the former, the overall effects remain positive.

The presented results suggest that the issuance of CCBs negatively affected LBG's profitability, and consequently cannot be considered a key success factor of the bank's recovery.

Nevertheless, one should bear in mind the limitations of this regression. External determinants of banks' profitability, such as growth and interest rates, demand for banking services, reputation, or even government protections to some specific banks are not covered in this model, and it is known that it affects the banking market. Besides this, other limitation arises from the fact that this regression does not compare banks that issued CCBs with the remaining ones. Moreover, one should also know that CCB's market, as aforementioned, is still relatively small, which may compromise several conclusions on the effects of the product. Specifically, for LBG situation, one should be conscious that this regression does not compare the issuance of CCBs with other possible financing alternatives, such as equity rising or even any other type of debt.

Lastly, it is also crucial to refer that this regression does not account for any government or regulatory imposition on banks' capital structure, which are increasingly present nowadays, especially since the implementation of Basel III regulatory framework.

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